

REMARKS

Claims 1-20 are pending in the present application. Claim 15 has been amended and claims 18-20 have been added. Claims 1, 4 and 17 are independent. Reconsideration of this application, as amended, is respectfully requested.

Rejections Under 35 U.S.C. § 103

Claims 1-9 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kusumoto et al., U.S. Patent No. 5,579,131 in view of Sakaguchi, U.S. Patent No. 5,912,724. Claims 10-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kusumoto et al. in view of Sakaguchi, and further in view of Imoto, U.S. Patent No. 5,264,948. These rejections are respectfully traversed.

At the outset, it is respectfully pointed out that the Examiner's statement of the rejection does not mention claims 15-17. However, the body of the Examiner's rejection discusses claims 15-17 as being rejected under 35 U.S.C. § 103(a) in view of the Kusumoto et al. and Sakaguchi references. Accordingly, it is believed that the Examiner has taken the position that claims 15-17 are also rejected in view of this combination of references; however, clarification is requested.

With regard to the merits of the Examiner's rejection, the present invention is directed to an image reading method and apparatus. Independent claims 1 and 17 are directed to the method and independent claim 4 is directed to the apparatus.

Independent claim 1 of the present invention recites a combination of steps including the recitation “wherein a light quantity of light which is incident on said image sensor is balanced among colors in accordance with an original type by adjusting a light quantity of light which is issued from a light source and incident on an original in accordance with the original type.”

Independent claim 4 of the present invention recites a combination of elements including “light quantity balance adjusting means for catching among colors a balance of light quantity of said light that is incident on said image sensor in accordance with the original type obtained by said original type acquiring means by adjusting light quantity of light which is issued from a light source and incident on an original in accordance with the original type, said light quantity balance adjusting means being provided between said light source and said original in accordance with the original type.”

Independent claim 17 recites a combination of steps including “balancing said quantity of light which is incident on said image sensor among colors by adjusting said quantity of light which is issued from the light source and incident on the original with said light quantity adjusting device in accordance with a type of the original.”

In the present invention, a light quantity adjusting filter 26 is exemplified by a filter having the spectral transmittance characteristic as shown in Fig. 8, which is the characteristic reverse to that of a color negative film base. The light quantity adjusting filter 26 is located between the light source 22 and the original F. In Kusumoto et al., the filter section 25 is located adjacent to the color CCD sensor and not between the

lighting section 113 and the film 11. Applicant respectfully submits that this difference is sufficient to patentably distinguish the present invention from Kusumoto et al.

The Examiner recognizes the above difference between the presently claimed invention and Kusumoto et al.; however, the Examiner relies on the Sakaguchi reference in order to modify Kusumoto et al. to arrive at the presently claimed invention. Applicant submits that the modification proposed by the Examiner would not have been obvious to one having ordinary skill in the art at the time the present invention was made.

In the Examiner's Office Action, the Examiner refers to column 5, lines 14-37 of Sakaguchi in order to disclose the light quantity balance adjusting means or the step of balancing among colors the quantity of light as respectively recited in independent claims 1, 4 and 17 of the present invention. Specifically, it appears that the Examiner considers the aperture stop 26 to be the light quantity balance adjusting means. Referring to column 5, lines 14-16 of Sakaguchi, it is stated "[t]he stop 26 is associated with the light source and functions to adjust the quantity of reading light incident on the original film." The stop 26 of Sakaguchi is not the same as the light quantity balance adjusting means of the present invention. The stop 26 of Sakaguchi is more analogous to the variable diaphragm 24 of the embodiment of the present invention shown in Figure 1, which only adjusts the quantity of light incident on the original film.

The stop 26 of Sakaguchi is not the same as the light quantity balance adjusting means of the present invention for at least two reasons. First, the stop 26 does not

balance among colors the quantity of light incident on the original as in the presently claimed invention. The stop 26 merely adjusts the amount of light that is incident on the original and is not capable of adjusting the light quantity balance among the three primary colors. Second, the stop 26 does not balance among colors the quantity of light in accordance with an original type as in the presently claimed invention. The stop 26 merely adjusts the quantity of light incident on the original. There is no indication in Sakaguchi that the quantity of light is adjusted, depending on the original type.

In view of the above, the Sakaguchi reference is insufficient to disclose the light quantity balance adjusting means of the presently claimed invention and therefore fails to provide a sufficient teaching to locate filter section 25 of Kusumoto et al. between the light source and the original as proposed by the Examiner. In other words, the stop 26 of Sakaguchi is non-analogous to the filter section 25 of Kusumoto et al., and therefore it would not be obvious in view of this teaching to modify the Kusumoto et al. reference in the manner suggested by the Examiner.

Referring to column 5, line 61 to column 6, line 20 of Sakaguchi, a color filter plate 28 is also described. However this color filter plate 28 is also not the same as the light quantity balance adjusting means of the present invention. The color filter plate 28 of Sakaguchi separates an image recorded on a film (original) into three primary colors R, G and B, thereby allowing the CCD sensor to read out the image as an R image, a G image and a B image. In the color filter plate 28, light from the light

source is decomposed into three primary colors with the color filters 28R, 28G and 28B and is incident on the film. Accordingly, the light passing through the film thus bearing each R image, G image and B image is incident on the CCD sensor.

Being separated into the three primary colors, the color filters 28R, 28G and 28B of the color filter plate 28 actually transmit the lights of different light quantities among the colors. However, the transmitted light quantity varies due to the property of the color separating filter itself and does not vary in accordance with the original type as in the presently claimed invention. Moreover, the color filter plate 28 does not select one of the color filters 28R, 28G and 28B in accordance with the original type to adjust each light quantity balance among the R, G and B colors. Accordingly, the color filter plate 28 of Sakaguchi is also insufficient to teach the light quantity balance adjusting means of the present invention.

In view of the above, the Sakaguchi reference is insufficient to disclose the light quantity balance adjusting means of the presently claimed invention and therefore fails to provide a sufficient teaching to locate filter section 25 of Kusumoto et al. between the light source and the original as proposed by the Examiner.

In addition to the above, Applicant submits that the Examiner has failed to establish a *prima facie* case of obviousness in the present situation. In order to establish a *prima facie* case of obviousness, the Examiner must provide a suggestion in the prior art to modify a reference in a particular manner. In addition, the Examiner

must consider the references as a whole. However, considering the Kusumoto et al. reference as a whole, the modification proposed by the Examiner would be contrary to the teachings of Kusumoto et al. In view of this, the Examiner's proposed modification is non-obvious. In the Kusumoto et al. reference, it is specifically disclosed that it is advantageous to locate the filter section 25 in front of the CCD sensor 112 in order to be able to make the filter section 25 small (see column 5, lines 19-24 of Kusumoto et al.). In view of this, Applicants submit that the Examiner's modification is completely opposite to the teachings of Kusumoto et al. and therefore non-obvious.

The following comments are also offered for the Examiner's consideration. In the present invention, the light quantity balance is adjusted between the light source and the original so that the intensive light (IR, R and G components) is not incident to the original and thus there will be less damage to an original which is highly sensitive to heat, etc., such as photographic film.

On the other hand, if the light from the light source is directly incident to the original, the heat especially due to the light from the IR and R components is generated and therefore an elevation in temperature occurs. Accordingly, damage to the original such as photographic film occurs, the damage being more severe as the incident time becomes longer. In order to prevent this, it is possible to cut the IR or R components of the light source. However, this will affect the reading ability so that the R component cannot be cut too much. Thus, it is possible to reduce the damage by sufficiently cutting the IR component, using an IR cut filter with high quality.

With respect to this, for example, thinking on the basis of a halogen light source, compared to the cutoff properties of the IR component in the case where the light quantity balance adjusting means is provided between the light source and the original as in the present invention, the cutoff properties of the IR component which is not being so is about 0.6 D in density (a ground is the ratio of the B component and the R component of the negative film). Therefore, when comparing the situation where the light quantity balance adjusting means is provided with the situation where there is no light quantity balance adjusting means, it is necessary to strictly perform the IR cut.

With regard to dependent claims 2, 3 and 5-16, Applicant respectfully submits that these claims are allowable due to their respective dependence on allowable independent claims 1 and 4, as well as due to the additional recitations in these claims.

With regard to the Imoto reference, this reference has been relied on for a teaching of the spectral sensitivity changing means recited in claims 10-13. This reference fails to disclose the location of the filter section 25 and therefore fails to make up for the deficiencies of Kusumoto et al. and Sakaguchi.

With specific regard to dependent claim 14, this claim requires the recitation "wherein said peak value changing means of said spectral sensitivity distribution will not operate in a reference type of the original." In the Examiner's Office Action, the Examiner asserts that the combination of Kusumoto et al. and Sakaguchi disclose this aspect of the present invention and therefore render dependent claim 14 obvious. While not commenting on the appropriateness of the Examiner's rejection, it is pointed

out that claim 14 depends on claim 11, which depends on claim 10. In view of this, dependent claim 10 requires the "spectral sensitivity changing means ..." recited in dependent claim 10.

In the Examiner's Office Action (page 6, paragraph 6), the Examiner recognizes that Kusumoto et al. fails to disclose the "spectral sensitivity changing means ..." recited in dependent claim 10. Therefore, it is not understood how the Examiner can take the position that the combination of Kusumoto et al. and Sakaguchi disclose dependent claim 14, when the "spectral sensitivity changing means ..." of dependent claim 10 is also required by this claim. **It is therefore respectfully requested that the Examiner clarify the rejection of dependent claim 14 under 35 U.S.C. § 103 in view of the Kusumoto et al. and Sakaguchi references.**

In view of the above amendments and remarks, Applicant respectfully submits that claims 1-17 clearly define the present invention over the references relied on by the Examiner. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103 are respectfully requested.

Additional Claims

Additional claims 18-20 have been added for the Examiner's consideration. Applicant respectfully submits that these claims are allowable due to their respective

dependence upon independent claims 1, 4 and 17, as well as due to the additional recitations in these claims.

Favorable consideration and allowance of additional claims 18-20 are respectfully requested.

CONCLUSION

All the stated grounds of rejection have been properly traversed and/or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently pending rejections and that they be withdrawn.


It is believed that a full and complete response has been made to the Office Action, and that as such, the Examiner is respectfully requested to send the application to Issue.

In the event there are any matters remaining in this application, the Examiner is invited to contact Paul C. Lewis, Registration No. 43,368 at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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